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DESIGN

# Introduction

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Cost-effective learning

Elevating teachers
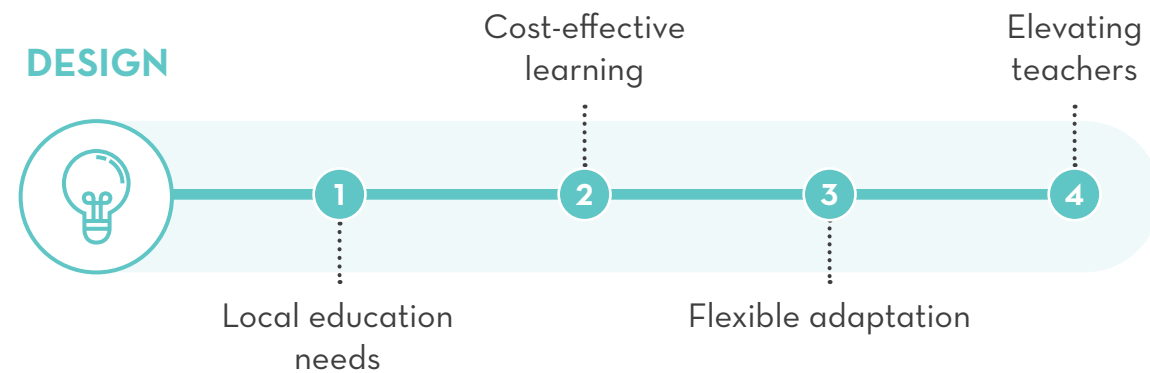
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Local education needs

Flexible adaptation

The guidance from the scaling literature strongly suggests that going to scale must be designed for from the outset.[53] This does not imply limitless scale, but rather, a clear vision of what the endgame is and a theory of change about the best way to get there.[54] For example, an endgame could be government adoption of a practice, and a strategy to get there could be through advising the Ministry of Education on a curriculum reform. It is worth noting that not every effective intervention should scale; some are effective by the very nature of their small size. But if scale is the objective, then experience in education and other sectors shows that it should be carefully planned from the start.

The case studies reviewed and additional evidence examined point to the following actions that are central to designing for scale from the outset. First and foremost,

any program or policy must tap into local education needs as identified by any and all of students, teachers, and parents. However, responding to local demand is not enough. Interventions must also ensure that costs are feasible at scale as well as identify the core components that are integral to the success of the learning intervention, while adapting other pieces based on the local context. Lastly, elevating teachers and leveraging community expertise have been an important approach to scaling in low-resource environments.

**Going to scale must be designed for from the outset. This does not imply limitless scale, but rather, a clear vision of what the endgame is.**

# 1. Local education needs:

Interventions should be designed in response to local demand and should ensure the participation of end-users.

One essential element of designing with scale in mind is to develop programs and policies that students, parents, or teachers actually want—not just what governments, implementers, or donors think they need. While this sounds obvious, there are countless examples of well-meaning and thoughtful education interventions that are not taken up simply because there was not a real demand for them or they were not designed in a way that was locally relevant—think computers or textbooks gathering dust in cabinets. Even in the case studies examined for this report, there are examples where programs did not initially take into account a community's needs and needed to make changes along the way. In particular, the cases underscored the importance of ensuring participation from the community from the start and building in local accountability.

▶ **One essential element of designing with scale in mind is to develop programs and policies that students, parents, or teachers actually want—not just what governments, implementers, or donors think they need.**

## Ensuring participation of local community

Beginning in the 1970s in response to criticisms of what were seen as top-down approaches in development, participatory approaches to local development increasingly gained attention and importance. The underlying premise was that enabling communities and citizens to define priorities and engage in the design of a program or policy would ensure a process that was more inclusive and responsive to the needs of the poor.[55] As Jeffrey Bradach, partner and co-founder at The Bridgespan Group, writes, "success of transformative scale often hinges on involvement of local communities in formulation and implementation of solutions."[56] Participatory approaches not only ensure more appropriately designed interventions but also generate the buy-in and create champions needed to support and sustain scale.

According to the Monitor Group, "People living at the base of the pyramid should be seen as customers and not beneficiaries; they will spend their money, or switch livelihoods, or invest valuable time, only if they calculate the transaction to be worth their while."[57] For example, even though students in SAT's alternative secondary schools, known as "centers" in Honduras, scored higher on tests than students in traditional schools, some parents were initially resistant to sending their children, as they believed alternative education to be an inferior form of schooling.[58] Over time, once families could see the results of the program, including university admission exam scores, they became supportive and the stigma disappeared. Bridge International Academies, a for-profit company that owns and operates low-cost private schools, originally opened for business in Kenya without uniforms in an attempt to keep the school affordable for families living under the poverty line. It quickly learned, however, that communities wanted uniforms because they bestowed a sense of identity and pride in the students, regardless of the additional expense.

Escuela Nueva, started by the not-for-profit organization Fundación Escuela Nueva, is an alternative primary school model that began in rural areas of Colombia in the mid-1970s and today has reached 5 million students in 16 countries, from Honduras to Vietnam to India.[59] It effectively tapped into the demand among parents in marginalized communities to have their children enrolled in schools that foster learning and development. It did this by emphasizing participation—of students, teachers, school administrators, and the

## Box 6. Fundación Escuela Nueva

Fundación Escuela Nueva, a nongovernmental organization behind the Escuela Nueva school model, works to improve the quality of rural primary and lower secondary schools. The model emphasizes student, teacher, school administrator, and community participation in its active, cooperative, and personalized learning model, by which students teach each other and themselves, while teachers and administrators act as facilitators and coaches, respectively. Established in Colombia in 1987, Escuela Nueva grew out of a movement to transform the quality of education in remote, public primary schools that dates back to the 1970s. Since then, Escuela Nueva has been adopted as a national Colombian policy and has scaled to 16 countries, reaching more than 5 million students. According to an independent study, students in grades three and five in Escuela Nueva schools in Colombia have achieved higher language and mathematics scores, with significantly lower dropout and repetition rates, in rural schools with the program than in traditional schools without the program.

## Box 5. Bridge International Academies

Bridge International Academies is a for-profit private school chain founded with the aim of providing students with high-quality pre-primary and primary education at a low cost. Each school is designed to ensure that children master the national curriculum's content while developing social and collaborative 21st-century skills. Local teachers are recruited and then trained on classroom management, academic coaching, and lesson delivery. Each subject's teacher guide is digitally published to a tablet, which is also used to collect teacher behavior and pupil assessment data, driving continuous improvement in the program's design. Bridge started in Kenya in 2008 and since then has scaled to Uganda and Nigeria. To date, Bridge has reached more than 100,000 students and employed 8,000 teachers in over 450 nursery and primary schools. Bridge partners with governments and NGOs to strengthen education systems across the world, including a recent partnership to operate public partnership schools in Liberia. According to a 2013 Early Grade Reading Assessment/Early Grade Math Assessment in Kenya, Bridge students gained the equivalent of 252 more days of reading education and 288 more days of mathematics education than their peers in neighboring public schools over the course of 26 months.

broader community. In the Fundación Escuela Nueva approach, the curriculum is designed to enable students to pace themselves and to foster collaboration through "cooperative learning" techniques. Fundamental to Escuela Nueva's model are its learning guides, which enable self-paced, self-directed learning in a structural pedagogical way. Teachers and students validate these learning guides for relevance and usability. The school calendar is adjusted to take into account that children's learning was being disrupted because of seasonal demands to work in the field.

Bridge International Academies designs its program based on vast amounts of data collected via various methods from community members, students, parents, and teachers. Constant revisions are made based on student results and teacher and family feedback and preferences, aided in part by innovative mechanisms, such as a 24-hour customer care hotline that receives more than 2,000 calls a day. Bridge and Fundación Escuela Nueva demonstrate that, regardless of the financing structure, any effective large-scale education program must tap into local demand and needs.

Other examples from Asia to Africa to Central America also highlight how initiatives that are designed to be relevant to the educational needs and interests of low-income communities can scale—and how they fail to do so when they have not adequately engaged or understood community demand.

One of BRAC's initial projects in the early 1970s, adult literacy classes in a remote rural area in Bangladesh, was considered

to be a "dismal failure."[60] It built village centers in northeast Bangladesh, where villagers could come in the evening to take free literacy and numeracy classes. BRAC candidly shared why after 18 months, only 5 percent of the original 5,000 villagers still came to the centers: because the idea originated from BRAC senior management and not the villagers. BRAC had assumed that villagers would want to come together to learn to read and write, but after a long day's work, people wanted to learn things that were more immediately usable in their daily lives. BRAC conducted a survey to identify the villagers' actual concerns and revised the classes to teach more relevant subjects, such as animal husbandry, health, nutrition, and child care. The reintroduced classes became so popular that parents asked for

something similar for their children. Thus, BRAC's Non-Formal Primary Education (NFPE) program was launched, and it has become the world's largest private, secular school system,[61] accounting for roughly 5 percent of all primary school enrollment in Bangladesh, with formal recognition by the government.

BRAC learned this lesson once again when designing its Empowerment and Livelihood for Adolescents (ELA) program, which is active in five sub-Saharan African countries. In South Sudan, the program sought to serve young women 15 years and older, in conformity with the World Bank's Adolescent Girls Initiative, an economic opportunities program that provided funding for ELA in that country. However, BRAC found that in order to achieve its objectives, including reducing

## Box 7. BRAC, Non-Formal Primary Education

BRAC's Non-Formal Primary Education (NFPE) program provides children who dropped out of or never enrolled in primary school with an opportunity to learn. It condenses the general, five-year primary school curriculum into four years, allowing students, upon completion, to take national secondary school exams and transition into public or private secondary schools. The program is taught by local teachers, recruited from the community (who usually stay with each cohort of children for the entire four years), and focuses on cognitive subjects, such as Bengali, English, mathematics, science, and social science, and noncognitive subjects, such as arts and communication. BRAC was launched in Bangladesh in the early 1980s, and over time, its NFPE program has expanded to Afghanistan, Pakistan, Philippines, and South Sudan. Today, BRAC NFPE reaches 670,000 students in Bangladesh and over 900,000 students in BRAC's other four NFPE countries each year. The organization works closely with the Bangladeshi government, and many consider it to be the largest private school network in the world. BRAC's dropout rate is below 5 percent, and its pass rate routinely surpasses government school rates in Bangladesh.

## Box 8. Aflatoun International

Aflatoun International aims to build children's personal, interpersonal, financial, and entrepreneurial skills through social and financial education programs in formal early childhood, primary, and secondary school settings, as well as in nonformal settings. Taking a social franchise approach, Aflatoun International works through local partners that train teachers and trainers to educate children, both those who are in school and those who are out of school, about their rights, financial savings, and how to start enterprises. Established in India in 1991, Aflatoun is engaged in 116 countries and reaches almost 4 million children and 34,000 teachers, facilitators, and peer educators each year. Recently, Aflatoun and its partners have been working with governments in 28 countries to integrate social and financial education into national curricula. Findings from a systematic review and meta-analysis of 21 randomized controlled trials on financial education interventions targeting children and youth found that Aflatoun's effect on financial behavior, or savings and resource allocation habits, was more than double the average effect across the 26 interventions studied.

child marriage and promoting sexual and reproductive health and rights, ELA needed to reach girls earlier, at ages 11 to 14, and revised its program accordingly.

Often overlooked is the role and interests that teachers themselves have in improving the educational systems where they work. Aflatoun International, a social and financial education program in early childhood, primary and secondary school

settings in 116 countries, has partnerships in three Francophone African countries with national teacher unions whose interest is to improve the relevance of the social and financial education curriculum and increase the training available to teachers in those countries. To date, this has resulted in curriculum integration in Togo and Niger and signed agreements to move forward with the process at the secondary level in Cameroon.

# Strengthening accountability to respond to local education needs

Improving accountability between education providers and clients (students, families, and teachers) is another important strategy for tapping into local demand.

As Linn argues, "The longer the chain of accountability between design and ultimate beneficiaries, the greater the likelihood that interests will diverge."[62] The

World Bank highlights this relationship in its triangle of accountability. Most public sector production uses the "long route" of accountability, whereby citizens or clients must rely on political processes to leverage their voices and influence the state's compact with providers rather than the ability to hold service providers directly accountable.[63]

Many cases reviewed used a community co-investment model as a strategy for gauging community interest and promoting ownership and accountability. As part of any new project activity, Room to Read, an NGO focused on improving literacy and gender equality in education, requires a community contribution to the overall effort of approximately 15 percent of total costs. This can be in the form of cash, labor, or in-kind donations such as land use, construction materials, or books. This up-front commitment generates a different set of expectations for project outcomes, creates a real sense of partnership, and increases the likelihood that projects will not only be implemented on time, but that communities are more inclined to sustain project activities themselves for the longer term. It opens the door for a strong community interest in learning the details of programmatic activities, providing input and feedback about the efficacy of overall program designs in the community and accountability for the use of resources. Room to Read staff in Tanzania reported community leaders losing their jobs in elections because they had not been accountable enough for the community funds pledged toward school-building construction.[64]

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### Box 9. Room to Read, Literacy Program

Room to Read is a nongovernmental organization focused on improving literacy and gender equality in education. Its Literacy Program uses a co-investment approach to work in collaboration with local communities, partner organizations, and governments to ensure that schools have a structured library with books in the children's local language and that teachers and librarians are trained in evidence-based reading and writing instructional methods. Literacy coaches are placed in classrooms alongside teachers to provide instructional support. Together, these intervention components aim to develop literacy skills and a habit of reading among primary school children. Since it was founded in Nepal in 2000, Room to Read has expanded to nine other countries across Asia and Africa and overall, benefited 10 million children across 17,500 communities. More specifically, its Literacy Program has reached 110,000 students and 2,000 teachers to date. Compared with an evaluation of 70 educational interventions in low- to upper-middle-income countries (of which Room to Read was not a part), Room to Read's impact is nearly 10 times that of the other interventions' average impact.

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Camfed's model, a secondary education program for rural marginalized girls living in five sub-Saharan African countries, has accountability at its core. Its programs begin with a focus on the individual girl in rural Africa as its client—looking at the world from her perspective and identifying the barriers that must be overcome to ensure she can receive a quality and empowering education. Camfed approaches community members as "shareholders," ensuring that all systems and processes are accountable to them. While many critics said that this approach could not scale because of its focus on the individual girl, Camfed found that it was actually that specific angle that allowed the project to scale and to do so at pace, achieving sixfold expansion in the number of girls receiving support in Malawi, for example, from 2,000 to 12,000, within three months. This approach to scale is premised on its governance model, refined over the past 23 years, that places accountability to girls at its core and dovetails with local education systems. This has enabled it to scale a needs-based financing mechanism that mobilizes extensive local infrastructure and assets to address girls' school-going requirements, including provision of school fees and other education costs alongside learning assistance and psychosocial support. Camfed scaled its model from reaching tens of thousands of girls to hundreds of thousands of girls within just a few months, supporting them through a full cycle of junior secondary school.

This is relevant even beyond non-state provision of education. Experiments are under way within the public system to shorten the route of accountability between the state and citizen, such as the Punjab government's Education Sector Reform Program (PESRP) in Pakistan, an initiative supported in part by assistance from the United Kingdom.[65] The program was created to complement the Punjab Education Reform Roadmap, with the intention of improving the province's quality of primary and secondary education. To shorten accountability between the government and its citizens, PESRP established approximately 56,000 school councils to promote community participation and parental involvement in their designated Punjabi public schools. Through this process, local citizens are empowered to monitor school performance, while school councils are granted annual budgets to respond to community needs.[66]

Scaling effective learning practices or approaches requires being responsive to local education needs, in particular those of students, teachers, and parents. It also requires accountability not only to the government and external partners but most importantly to these "end-users." Local community participation and ownership of a program or policy are also essential to sustain an intervention for the long term. While being responsive and inclusive are necessary conditions for scaling an effective learning intervention, alone they are insufficient. At times, more information is needed to demonstrate and persuade communities of the benefit of education. It also requires some of the following key ingredients.

# 2. Cost-effective learning:

Cost structures affordable at scale should
be incorporated in the design.

Understanding what is relevant and desired by students and parents is crucial to designing an effective intervention that harnesses community demand. However, if the costs of the intervention are too high for a government to adopt or for an actor to replicate at scale, then no matter how aligned it is to community needs, it will not scale. Ensuring the right costs—for whoever is taking it up, the government or parents—is another crucial component of successfully scaled interventions.

Too often, interventions are designed at the outset solely for effectiveness and not for the efficiencies that are required for scale. This leaves "the bridge to scale too far to cross."[67] As Ian Thorpe writes in his blog Knowledge Management on a Dollar a Day, many pilots start with "a kind of loving attention and specific starting conditions that couldn't easily be replicated."[68] If you begin with the luxury, gold-plated model, it becomes very difficult to determine which pieces to remove—either because psychologically people come to expect them, or pragmatically it is difficult to determine which elements are responsible for driving improvements. Even if a program is highly effective, if it relies on too many resources to reach too few children, the approach it uses holds little promise of spreading and being taken up by others. As Robert Sutton and Huggy Rao, professors at the Institute of Design at Stanford University,

write, "scaling requires both addition and subtraction . . . the problem of more is also a problem of less."[69]

A surprisingly large number of pilots focused on improving children's learning pay scant attention to costs. In a review of cost-effectiveness analysis of education and health interventions in developing countries, McEwan discusses how impact evaluations cannot always inform resource allocation decisions unless the costs of interventions are considered alongside their effects. He goes on to argue that "cost-effectiveness analysis is a straightforward but underutilized tool for determining which of two or more interventions provides a (non-pecuniary) unit of effect at least cost." He finds that "across multiple sectors, education and health projects are, by far, among the least likely to report results of a CBA [cost-benefit analysis] at project appraisal."[70] In a review of scaling in development more broadly, Hartmann and Linn stated that "research on the cost implications of scaling has been limited

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and what research has been carried out has been hampered by the scarcity of relevant cost data reported in the public domain."[71] A review of scaling in nutrition found that detailed costing studies that provide unit costs of interventions are usually unavailable for a given context. This leads to underestimating or overestimating an intervention, which can have a negative impact on efforts to scale.[72]

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## Balancing cost and quality

Few would argue with the logic of finding a cost structure that allows scaling, including scaling that reaches the most vulnerable young people, which is often a more costly endeavor.[73] But the question is how this can be achieved without sacrificing quality.

First and foremost, it requires understanding from the outset the longer-term cost implications of sustainably scaling—and delivering at scale—based on sound cost projections.[74] This requires identifying the incremental cost of all resources (i.e., personnel, facilities, materials) incurred by all stakeholders (i.e., schools, government, householders) for the development, implementation, and maintenance of an intervention as and after it scales.[75] At the same time, as Laurence Chandy, a fellow at Brookings, and colleagues write, there are real challenges in developing cost projections, as scaling involves changing cost curves, altering beneficiary behavior and the policy environment.[76]

Room to Read considers cost-effectiveness as one of the core design features in its program development. In 2014, for example, the organization went through a controversial change in its literacy instruction approach. Previously, it had used a large number of manipulatives in its classroom activities. These included flash cards, literacy wheels, dice with words on them, small series of six- to 10-page decodable texts, and individual student writing books. Teachers reportedly enjoyed these resources because they were fun and broke up the monotony of the school day. However, the diversity of materials was expensive to produce, and preparing activities and switching among them took too much of the school period. Room to Read has therefore consolidated its classroom materials into a single, nondisposable student book per grade per country. It includes the same engaging activities, but they are relatively less expensive to produce on a per-child basis. These books, which can be used over multiple years, are much closer to a price point that can be absorbed by Ministry of Education budgets over time.

This same logic explains why Fundación Escuela Nueva has, despite multiple offers by technology companies, very cautiously analyzed the value add and implications

of integrating tablets or mobiles for teachers or students into classrooms where the organization works.[77] Its point is that a pedagogical transformation at the classroom level needs to happen first for technology to meaningfully and effectively impact learning. In addition, the cost-effectiveness of the model has to be guaranteed. Adding even relatively inexpensive technology could increase the cost per child and make it harder to scale across contexts, including communities with limited financial and human resources.

Detailed cost projections are partly how Bridge International Academies could expand as rapidly as it has. It prioritizes the quality education it expects at a particular price point. For example, Bridge expects to provide r esults that are as good as or better than those of neighboring public schools at a price that families living on less than $2 per day can afford. According to Bridge, the average household income of its pupils is $136.22 per month, with an average of four or five members per household, meaning that 4.4 percent of a family's average income is spent on each child's education.[78] Maintaining this average price of $6 per month has driven the team to be ruthless about driving down costs.[79] Any proposed addition to the current model is translated into the number of families that can no longer be served.

Policymakers say that it is important to not only have costs per unit but also cost comparisons to the alternative to help channel resources to the most effective intervention. At first glance, an intervention might appear expensive, but compared with the alternative or to the savings it will generate, it might be a great value for the money. In 1992, as

part of a larger donor-sponsored report on BRAC's NFPE program, a team from a well-respected national accounting and market research firm undertook a small survey to compare the private and public cost of rural government primary schools and BRAC NFPE centers in Bangladesh. The study concluded that the public cost per enrolled student was on par with the formal and nonformal BRAC schools but that the high dropout rate from formal schools resulted in public and private costs per third grade completer more than four times the cost per NFPE completer.[80]

Cases reviewed demonstrate ways that costs were kept low without sacrificing quality. This includes through leveraging technology, community engagement, existing government structure, and experimenting with cost-recovery measures.

### Leveraging technology:
In many of the examples reviewed, technology played an important role in reaching a scalable cost by generating efficiencies, by automating work and optimizing the use of resources as programs and policies scaled. Bridge International Academies has leveraged technology through a smartphone with a customized Enterprise Resource Planning (ERP) to monitor all payments in and out of the school—school fees, teacher and staff salaries, and so on—reducing financial transaction costs and allowing it to need only one nonteaching staff member at each school. The role of technology will be discussed further below.

### Leveraging community engagement and resources:
As discussed further below on elevating the role of teachers and leveraging

community resources, many of the cases also creatively leveraged community members' expertise to both unburden the teacher, help enrich students' learning experience, and ultimately enable a lower cost structure. In many instances, this double or triple win helped reduce expenses while also bringing a level of energy, commitment, and authenticity to the program.

### Creatively using government infrastructure:
Maximizing the effectiveness of positions and buildings within the government can help keep costs low, for both government and nongovernment actors. For example, Pratham's Read India, a remedial education program that helps children in grades three to five learn reading, writing, and basic math, intentionally kept costs low

and avoided creating parallel structures by trying to rejuvenate and optimize existing but underutilized positions and structures within the government. Read India's teacher-led summer camps energized existing cadres of Cluster Resource Center Coordinators (CRCCs)[81] to oversee teaching and learning activities. Traditionally, CRCCs were considered fit for only routine administrative and regulatory tasks. However, Pratham's attempt to institutionalize Read India through CRCCs revitalized their roles. Pratham trained CRCCs for four days and then had them practice in the field for 20 days. After that, Pratham trained teachers in the new methodology of grouping and teaching at the right level. In this way, Read India's teacher training activities were less radical, more cost-efficient, and more easily replicated.

### Box 10. Pratham, Read India

Pratham's Read India initiative works to ensure that children in grades three to five acquire the ability to read simple text and do basic arithmetic. This approach involves identifying children's current learning levels, regardless of age or grade, and grouping them by level for instruction, an approach referred to as "teaching at the right level." Pratham's Read India program started in 2007 and today is implemented in 23 Indian states, having directly affected more than 350,000 primary school students directly in rural areas from 2014 to 2015 and 6 million students indirectly through its partnerships with state or district governments. A series of randomized evaluations conducted by J-PAL of Pratham programs found significant gains in learning outcomes when children are grouped by level rather than by grade. Pratham also facilitates the Annual Status of Education Report (ASER), a nationwide citizen-led household survey that assesses basic reading and arithmetic levels of children in over 550 of India's rural districts. ASER has been carried out every year starting in 2005, and since 2008, began functioning as an autonomous unit within the Pratham network.

## Questions on cost recovery

A number of the cases in which NGOs did the scaling have been experimenting with cost recovery efforts, with varying degrees of success. These organizations rely heavily on philanthropic support and are interested in diversifying their funding base. For example, with Educate!, a leadership and entrepreneurship training program in secondary schools in Uganda, its original financial plan included charging partnering schools along a sliding scale and increasing the amount over time, starting at $200 per year per school and eventually charging $600. This fee did improve school buy-in, but Educate! found that the time and effort involved in collecting payment was not worth the amount it was charging. Therefore, it recently decided to keep a nominal fee for partner schools to demonstrate commitment but not as a cost recovery mechanism for the program. Today, more than 80 percent of its revenue comes from foundations. Room to Read recently

launched a technical assistance arm called Room to Read Accelerator to share and train other organizations and government partners that are interested in implementing similar delivery models. Room to Read Accelerator takes best practices from its core work, codifies them, and systematizes the approach, charging partners a fee sufficient to recover its costs. The idea is for this unit to not just be self-sustaining but to allow Room to Read to scale and serve even more children in areas that it would not otherwise be able to reach through direct implementation.[82]

Whether costs were kept low from leveraging existing infrastructure, creatively tapping community resources, or utilizing appropriate technologies, it appears that there are a number of lessons to learn from low-resource environments. In these contexts, actors did not have a choice but to keep costs low as they scaled.

### Box 11. Educate!

Educate! is a nongovernmental organization that addresses the mismatch between secondary education and employment opportunities in sub-Saharan Africa, as well as a tradition of rote memorization and theoretical teaching methods, with the ultimate goal of teaching African youth to solve poverty for themselves and their communities. It provides students with skills training in leadership, entrepreneurship, and workforce readiness, along with mentorship to start real businesses at school, and the model itself is delivered through trained teachers and youth mentors. Educate! began in Uganda in 2009 and now reaches 120,000 students in 350 schools, or 12 percent of Ugandan secondary schools, having advised the reform of Uganda's upper secondary entrepreneurship curriculum and incorporated its model into Rwanda's national secondary school curriculum. Midline results from Educate!'s randomized controlled trials indicate that its secondary students' incomes are doubled after graduating secondary school and that they are 64 percent more likely to start a business and 123 percent more likely to initiate a community project.

# 3. Flexible adaptation:

Core elements of effective learning approaches should be identified and replicated across contexts while adapting the rest to local circumstances.

Ultimately, even if a pilot effectively meets educational needs with a scalable cost, it can face obstacles when expanding because the design is either too rigid or too flexible. In the cases and literature examined, there appeared to be an optimal point between wholesale replication and costly customization. The key appeared to be flexible adaptation of the model. This requires what Nesta refers to as "identifying the core"[83] — essential aspects of the model that must be maintained as it scales. The reviewed case studies established an important balance between those elements that are nonnegotiable and replicated across contexts and the other aspects that are more flexible and should be adapted to each location. The challenge is striking the right balance between local adaptation and fidelity to the original model.

In the literature, striking this balance is most often associated with understanding what is essential to achieving impact.[84] In discussing the spread and adoption of innovation, Anna Davies, professor at Trinity College Dublin, outlines that the diffusion process should reflect replication of the "core content" of an idea, rather than exactly replicate every aspect of the original.[85] In Nesta's interviews with social innovators, this meant establishing "what's fixed and what's flexible—in relation to the model, scaling routes, goals and aims."[86] Often, the core is a practice, mission, or approach rather than spreading a specific education model.

For SAT, the underlying philosophy of developing a generation of socially minded young people who can serve as engines of sustainable development in their communities is the core approach to

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## Box 12. Sesame Workshop, Sesame Street

Sesame Workshop's Sesame Street uses television, radio, videos, websites, books, and social media to educate preschool-aged children on literacy and math, emotional well-being, health and wellness, and respect and understanding. The show began in the United States in 1969 and has since expanded to more than 150 countries, reaching approximately 156 million children and serving as the single largest informal educator of children in the world. Studies demonstrate that Sesame Street is an effective learning tool for children with a positive impact across countries. A meta-analysis of its educational impact in low- and middle-income countries found an impact that is comparable to that of other early childhood interventions, with scale being its key distinguishing factor.

every school in every country. In addition to sharing a common value, the curriculum, or 80 texts developed by the parent organization in Colombia, Foundation for the Application and Teaching of the Science (FUNDAEC), is a core component that is shared across the countries. Beyond the curriculum, much of SAT's implementation is determined by the local context. This includes when and where to meet, the number of hours per week to meet, and the coordination structure in each country.

While BRAC schools incorporate a country's national educational curriculum into its program, the classrooms look and feel remarkably similar across the various countries, as diverse as Afghanistan, South Sudan, and Philippines. BRAC's core components include hiring female teachers from the local community and supporting them with regular training. Low-income children, girls, and other marginalized youth are given priority,

and many steps are taken to minimize the formal and informal costs of attendance. Parents are engaged regularly.

Sesame Workshop, the nonprofit behind the children's television show Sesame Street, provides a framework for its international Sesame Street co-productions that share a universal style, target age group, and whole-child approach for core learning goals for that age group, but leave it to local production teams to develop the series based on the needs of children and the specific education goals of each country.

Teach For All, an international network of local, independent organizations that recruit and train recent top-performing graduates and professionals to commit two years to teaching in their countries' underserved schools and communities, attributes much of its success to its approach of ensuring that each network partner operates with full ownership for

developing its program and organization. The Teach For All network comprises 39 independent partner organizations that share a mission and commit to certain principles but have full autonomy in determining how best to achieve them.

Of course, striking this balance between universal replication and local adaptation can be hard, even when being deliberate. Sometimes, the elements that are assumed to be core are not necessarily what are behind a program's success. In an example outside the education sector, what was ultimately found to be responsible for the exponential spread of M-PESA, the mobile money platform in Kenya, was not the mobile technology, but the distribution network of local vendors who served as M-PESA agents to register new customers and facilitate

cash transactions. This was also the case with the scaling of Lesson Study across Zambia, a peer-to-peer teacher training practice. While it was important that this Japanese-adapted practice be seen as part of Zambia's national teacher professional development reform, what was key to its success was the existing countrywide network of Teacher Resource Centers with officers tasked with guiding and monitoring these new practices.

The cases reviewed addressed the tension between localization and scale by identifying core elements that were integral to an intervention's success— be it an underlying principle, a piece of technology, or an existing distribution network. At the same time, there was flexibility to adapt the model or approach to the local context as needed.

## Box 13. Teach For All

Teach For All is an international network of local, independent organizations that recruit and train recent top-performing graduates and professionals to commit two years to teaching in their country's underserved schools and communities, with the goal of developing a pipeline of future education leaders. Teach For All was co-founded by Teach For America and the United Kingdom's Teach First in 2007 and has since become a global network of 39 country partners. The network has reached 1.1 million students and 52,323 teachers and alumni to date and has had an impact on both individual students and overall education systems. Studies from partner countries demonstrate learning gains, such as a Mathematica Policy Research study that found students taught by Teach For America math fellows demonstrated an additional 2.6 months of learning over the course of the year compared with students taught by novice and veteran teachers. At a systems level, Teach For All has contributed to broader education reform and change through its fellows and alumni, as 50 to 80 percent of alumni from most partners stay full time in the education sector.

# 4. Elevating teachers:

Community expertise should be leveraged to support and unburden teachers.

Teachers are perhaps the most important actors in children's educational experiences, especially for marginalized children. Evidence from numerous studies shows that the quality of teachers significantly influences children's learning in school.[87] In a study of 15,000 teachers across Latin America, learning outcomes of students were less influenced by being in a good or bad school than they were by being taught by a strong or weak teacher.[88]

## Overburdened teachers

Teachers' jobs are very complex, and around the world, teachers are being asked to do a wide range of tasks not directly related to their core job of instructing children. For example, a typical day for a teacher includes instructing during school hours, preparing lesson plans, grading student progress, managing classroom behavior, tracking and reporting data, communicating with parents, providing extra assistance to students falling behind, mentoring or providing social support for children with difficult family circumstances, meeting with school personnel, buying school supplies . . . and the list goes on. Some argue that education, and by extension teachers, is being asked to solve a wide range of social problems.[89] This view, that education is a panacea solution to many social ills, places a very large, and perhaps unfair, burden of responsibility on teachers.

In addition, in many developing countries teachers face seemingly insurmountable

hurdles. Many teachers have classes with more than 40 students, surging up to 100 in some countries after adoption of free universal primary education.[90] Many teachers are doing the best they can amid difficult environments. In some places, teaching positions are used by politicians as a form of political patronage and are assigned not to those who are motivated and trained to be teachers, but to those supporters for whom politicians need to curry favor.[91] This puts a heavier burden on those teachers who are motivated to try to compensate for their peers who are not. In some post-conflict contexts, teachers go months without salaries.[92] In Liberia, a national survey of teachers after the civil war showed that most teachers—in some areas 90 percent—held multiple jobs (i.e., farming and tutoring in addition to teaching) to make ends meet. In the developing world especially, there simply are not enough teachers. Recent estimates suggest a global teacher shortage of 2.7 million primary school

teachers in 2015.[93] Projections estimate that to provide every child with a primary education by 2030, 25.8 million teachers will need to be recruited.[94]

To address this shortage, many schools have adopted a double shift system, requiring teachers to work 12 hours per day, teaching two separate groups of kids back-to-back, leaving no time for professional development and preparation.[95]

A number of the cases reviewed for this study designed effective approaches that could scale quality learning by elevating the role of the teacher, leveraging expertise that exists in the community, and providing multiple pathways to bringing motivated people into the teaching profession.

## Activating community expertise and technology to unburden teachers

From India to Uganda, elevating teachers' roles and attracting other resources to support teachers, whether through technology or through expertise that is outside of the school in the community, has been a strategy used across multiple cases we studied. Room to Read, Educate!, Read India, and INJAZ, a Jordanian nonprofit organization that provides entrepreneurship and work readiness training for secondary and post-secondary students, are all examples of rethinking who in the community can add to students' education without requiring teachers to take on more responsibilities. Across the cases it varies whether these community members are volunteers or employees, but in each case they are not only adding support to teachers but also building passion in communities to prioritize education.

For example, INJAZ partners with private sector companies and trains its employees who volunteer to teach the lessons. This helps teachers by not burdening them with yet another subject they have

to prepare and teach. On average, since 2015, a cadre of 3,170 individual volunteers have delivered 2,500 sessions each year, forming the largest network of committed volunteers in Jordan today. A byproduct of this collaboration has been advancing a culture of volunteerism in Jordan. Beyond volunteering to teach, private sector companies support INJAZ by adopting schools, sharing information and data, and providing employment and internship opportunities to graduates.

Similarly, Educate! in Uganda has leveraged community members to teach Uganda's entrepreneurship curriculum alongside teachers in schools, relying on entrepreneurs and employees from local businesses. To deliver the lessons, Educate! primarily hires alumni of its program who are young entrepreneurs themselves. Its model allows teachers to be supporters of the subject, but as with INJAZ, relieves teachers of having to get up to speed on new topics. This strategy is coupled with teacher training programs, which are tied to long-term government education reform goals.

## Box 14. INJAZ, Jordan

INJAZ, an independent Jordanian nonprofit organization, specializes in youth empowerment programs and leverages the public, private, and social sectors to help bridge the skills gap between the secondary school system and the changing needs of the labor market. INJAZ programs, delivered through a network of more than 23,000 trained volunteers, provide youth from seventh grade to university level and post-graduation with content and activities that improve their financial literacy, ethical leadership, teamwork, creative thinking, communication, and interpersonal skills. For older youth in colleges and universities, youth centers, and vocational training institutes, the majority of the programs offered provide direct links to real-world opportunities and support for them to gain work experience or otherwise develop their professional and entrepreneurial skillset. Since its inception in 1999, INJAZ has scaled across all 12 governorates and has reached 1.2 million youth to date. The program has been integrated into Jordan's official school schedule, and, according to an internal study, INJAZ graduates had an unemployment rate of 19 percent compared to the national rate of 32 percent.

Other programs reach out to a school's parents and community members to help unburden teachers. Room to Read's Girls' Education Program, for example, trains educated, empowered women from the community to be "social mobilizers" to work directly with the more than 30,000 girls in the program as their mentors, counselors, and advocates. In addition to serving as excellent role models, these women provide critical personalized emotional guidance and life skills training that many teachers do not have the capacity to provide every girl in the classroom, plus out-of-school engagement and home visits that can be unrealistic for teachers to undertake. This added support system improves girls' school participation and life skills, and it has resulted in other positive externalities, such as empowering women and developing more female role models in the community.

Pratham has used a number of strategies to implement its Read India model for teaching at the right level. Across all of them, government officials have played important roles from sanctioning the experimentation with this approach to actively participating or putting resources behind it. In some cases, community volunteers are trained to teach children literacy skills in summer and outside schools. In other cases, government teachers, Pratham staff, and community volunteers work with students during the school day. This strategy is effective because it leverages community resources to help support teachers and to reach and teach students who are falling behind. As in the other cases, the community engagement model had a dual benefit: elevating and unburdening teachers to provide remedial tutoring along with instruction, and engaging 10,000 volunteers and bringing them into the "battlefield against

poor learning," something Pratham's CEO said no advocacy campaign could have accomplished.[96]

This is not to say that relying on community members and volunteers is without challenges. While some community members were paid and others volunteered, their training was a crucial element of the program's success. Quality control and delivery standardization can be difficult in these models. INJAZ, for example, faced this issue, to which it responded by implementing mandatory volunteer trainings at the beginning of each semester before volunteers can teach a class. Read India also struggled with quality control and actually scaled back after its first phase to work on its training. Today, whether it is community volunteers or teachers implementing the Read India program, Pratham requires a heavy dose of training. For example, in Pratham trainings, participants leave the training location to go into nearby schools and "practice" the techniques they have learned in the training sessions. In many cases, especially when Pratham is working with the government, officials have to "practice" the Pratham method in their schools every day for 15 to 20 days to build mastery of the approach.

With the right design and flexible adaptation as programs scale, leveraging community members' expertise is in many cases an effective strategy for helping improve student learning, along with supporting more traditional teachers inside and outside the classroom. Governments that are flexible and help sanction, support, or sustain this approach are crucial in the scaling process.

In cases from both Brazil and Kenya, the way teachers' roles are configured and

how technology is leveraged unburdens them from the normally overwhelming list of tasks they face. For example, in Amazonas state in Brazil, Media Center, a distance learning formal secondary education program, is designed for two types of teachers: a specialist lecturing teacher who communicates via satellite from a central studio, and a generalist tutoring teacher who facilitates learning in the classroom. Lecturing teachers are highly trained and research their subjects of expertise, develop content for the lectures, and reach thousands of students at a time, whereas the tutoring teachers work directly in the classrooms to guide student learning, support classroom interactions, monitor student activities, and perform administrative duties, without being responsible for instruction, content delivery, or deep knowledge of any one subject.

**In cases from both Brazil and Kenya, the way teachers' roles are configured and how technology is leveraged unburdens them from the normally overwhelming list of tasks they face.**

In other cases, technology has been leveraged to split the traditional responsibilities of a teacher into those creating lessons versus those teaching lessons. For example, a core component of Bridge International Academies' model is that teachers receive a daily teacher guide with lessons via tablets, which is essentially a scripted lesson plan for them to follow. By centrally developing all the teacher and learner materials, teachers

## Box 15. Amazonas State Government's Media Center

Brazil's Amazonas state government's Media Center initiative is a locally developed, formal secondary school model seeking to address the disparity in education access between urban and rural areas. It employs digital satellite technology to deliver live lessons from "lecturing" teachers at the Media Center studio in the capital, Manaus, to up to 1,000 classrooms across Amazonas state, with "tutoring" teachers located in each classroom with anywhere from five to 25 students. This initiative allows for bidirectional interactivity, meaning students can stream the teacher's lecture at the studio and present information back, thereby appearing to all other classrooms and to the lecturing teacher in the studio. Established in Amazonas state in Brazil in 2007, Media Center's 60 lecturing teachers and 2,200 tutoring teachers have reached 300,000 students across 2,300 communities—approximately 25 percent of secondary school students outside of Manaus—to date. The Media Center model has been adapted to seven other states in Brazil to serve difficult-to-reach populations. Since its establishment, lower to upper secondary school progression rates have increased, dropout rates have nearly halved between 2008 and 2011, and children's learning in Amazonas state has steadily improved as reflected on the Brazilian Education Quality Index.

are relieved of the burden of creating content and lesson plans and are able to spend more time focusing on their students' progress. One Bridge teacher in Nairobi expressed that the scripts gave her confidence and allowed her to focus on students who needed additional support.[97] This approach also frees up teachers from a range of administrative tasks. For example, the tablets allow centralized data collection and analysis, facilitating central monitoring of many aspects of teaching and learning that would traditionally be the responsibility of teachers to collect and monitor.

Unburdening teachers from the multiple demands placed upon them, and finding new ways to deliver some of the tasks previously assigned to teachers, is known as

"unbundling" the role of the teacher.[98] This approach is beginning to be employed by a range of programs, including one inside the United States. For example, Preston Smith, co-founder and CEO of Rocketship Education, a network of U.S. public charter schools for low-income students, argues that elevating the role of teachers by unburdening them and allowing them to focus solely on instruction is an important factor in the program's success. Effectively teaching children in marginalized communities takes, he says, "a great deal of rigor." The more time teachers can focus on teaching and instruction, and the less time they spend on tasks not related to teaching, the better off both teachers and students will be. Rocketship does so through several strategies, including deploying other

personnel and using technology to take on administrative tasks usually handled by teachers. In the future, Smith envisions a further optimizing of the teacher's role where teachers specialize according to their strengths in instruction, technology provides real-time analysis of student learning progress, and parents engage more deeply with schools.[99]

These examples show how technology enables scaling when it comes to teachers. From Media Center to Bridge International Academies, some approaches unbundle teacher responsibilities into those that technology can enable them to scale—namely lecturing, lesson design, and tracking

student progress and administrative data-intensive tasks—versus those that cannot, such as classroom facilitation and student interaction. Interestingly, this dynamic was almost the opposite when groups leveraged parent and community workers rather than technology to unburden teachers. From Pratham to Room to Read, it was the extra person-to-person support, interaction, and attention to students and their needs that community members took on to help alleviate teachers. Ultimately, all of the cases examined focused on quality interaction and instruction as central to children's learning experience even as they often thought quite differently about how this should be achieved.

# Diversifying pathways to teaching

Given the different ways in which the role of the teacher is configured across the cases, it makes sense that there are different pathways to becoming a teacher. The traditional formula of completing higher education, specializing during pre-service teacher training, and then teaching in the classroom is supplemented by other routes. The approach varies in the different cases—inside and outside communities, in and out of schools—but they exemplify the need for diverse pathways into the teaching profession, especially for underserved areas.

The case studies are backed up by literature that finds that hiring teachers from local communities helps close the cultural and linguistic gap between teachers and students, thereby improving learning outcomes and enrollment. In areas experiencing regular teacher

shortages, hiring para-teachers from within communities has helped address the teacher shortage in remote areas, and having teachers who are of the same demographic background helps close the "social distance" between teachers and students and ultimately improves student learning.[100]

For example, SAT in Latin America does not employ the term "teacher" but uses "tutor" to signify a less hierarchical conception of how the learning process unfolds. Tutors, who are often secondary school graduates from the community where they will ultimately be teaching, undergo intensive training in SAT content and pedagogy, with a heavy focus on student-centered learning. Tutors have neither the typical teacher profile nor the typical teacher role. Tutors are meant to learn along with their students, and they

stay with one cohort during their six years of lower and upper secondary school. The job of the tutor is to facilitate students' active engagement in SAT lessons and actively develop their own skills as they go by participating in 10 days of training every three months. These tutors are actively involved in the communities and often in the students' lives as well, building close relationships and spending time with students and their families outside of lessons. In Honduras, the government has adapted to the community needs and supported this new pathway for becoming a teacher by agreeing to pay the tutors' salaries.

Teach For All takes a different approach. Instead of leveraging members of the community, its network is built on the idea that countries should be channeling much more of their top talent toward improving education for vulnerable children. Partners in the Teach For All network diversify the pathways into teaching by recruiting and training outstanding university graduates and young professionals, many of whom did not plan or study to be educators, to teach in marginalized communities. Again, the focus is much more heavily on in-service rather than pre-service training and the "fellows" in the Teach For All organizations around the world receive the bulk of their training after being deployed to a school and classroom. A global network of Teach For All fellows and alumni supports sharing of lessons learned, and training opportunities are available throughout the two years that fellows are in the program.

Governments are almost always crucial partners in this effort and across the 39 countries where Teach For All independent

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partner organizations operate, providing a mix of in-kind or financial support to help develop and sustain this additional pathway to becoming a teacher. Initially this approach may help fill a teacher shortage in an underserved community, but the organization's ultimate goal is to build a movement of talented individuals who become lifelong educators, innovators, and advocates for expanding opportunities for marginalized children. Across their network partners, more than 60 percent of their alumni stay within education and many others work on issues related to education and low-income communities from sectors such as policy, medicine, and law.

In activating resources from local community members or technology— either directly or through opening up additional pathways to becoming a teacher—ensuring that teachers are supported and respected is an important element of lifting some of the burden from their shoulders. The experience of the Zambian government in Lesson Study is a powerful reminder of the importance of respect. In the initiative, the government has flipped its teacher training approach

from one that emphasizes what teachers lack (known as a deficit approach) to recognizing the assets teachers bring and giving them the space to build on these assets. Teachers at school are able to produce their own ideas to improve their lessons and are empowered to be the main agents, with support from peers, in their own training.

A new approach initiated in India reinforces the importance of this respect. STIR Education, which focuses on improving teaching, has worked with more than 12,000 teachers in India and Uganda, identifying teacher "changemakers" who are inspired to

innovate in their classrooms, supporting them and connecting them to a network of other innovative teachers to collaborate. STIR has found that good leadership and recognition from local communities are more important than salary or training for motivating teachers. Preliminary results have shown promise—in some Ugandan schools, teachers were four times as likely to arrive on time after completing the STIR program.[101]

In conclusion, activating resources from outside of the school and developing new pathways to do so sustainably can play an important role in unburdening teachers and helping to improve learning.